

## Protection against Mosquitos, Flies, and Blight

MR. HAGEN'S letter on the destruction of insect-pests (NATURE, vol. xxi. p. 611) induces me to make generally known an absolute preventive of the bites of mosquitos, gnats, of green-fly in the viney, blight in the garden, and a protection to animals from these "insect-pests." A few years ago I had some peach-trees which, being on a wall exposed to draught, were annually blighted. One died, and the new wood of the others was not more than a hand's length. A scientific friend advised me to try a weak solution of quassia to water them with, and the success was complete. Blight was prevented. The first year the trees bore well and the new wood was elbow-length or more. I next tried quassia in the viney. Instead of lime-washing the walls to get rid of the green-fly, one watering with quassia dismissed them in day. My head-gardener, who had previously much experience in nursery-grounds, wondered that he had never heard of it before. He now uses it in all cases as a protection from flies and blight. The dilution goes a long way: one pound of chips of quassia-wood boiled and reboiled in other water until he has eight gallons of the extract for his garden-engine. He finds it inadvisable to use it stronger for some plants. This boiling makes the quassia adhesive, and being principally applied to the underleaf, because most blight settles there, it is not readily washed off by rain. Quassia is used in medicine as a powerful tonic, and the chips are sold by chemists at from sixpence to a shilling a pound. The tree is indigenous to the West Indies and to South America.

And now as to gnats and mosquitos. A young friend of mine, severely bitten by mosquitos and unwilling to be seen so disfigured, sent for quassia-chips and had boiling water poured upon them. At night, after washing, she dipped her hands into the quassia water and left it to dry on her face. This was a perfect protection, and continued to be so whenever applied. The pastilles sold in Florence and elsewhere, which are vaunted to be safeguards against mosquitos, are, from my own experience, of no use.

At the approach of winter, when flies and gnats get into houses and sometimes bite venomously, a grandchild of mine, eighteen months old, was thus attacked. I gave the nurse some of my weak solution of quassia to be left to dry on his face, and he was not bitten again. It is innocuous to children, and it may be a protection also against bed insects, which I have not had the opportunity of trying. When the solution of quassia is strong it is well known to be an active fly-poison, and is mixed with sugar to attract flies, but this is not strong enough to kill at once. If it be true that mosquitos have been imported into one of the great hotels in the south-west of London, it might be very useful to anoint some of the furniture with it. Then a strong solution with sugar set about the rooms ought to clear them out.

Oatlands Park, Weybridge

WM. CHAPPELL

## Immersion of Iron and Steel in Acidulated Water

IN NATURE, vol. xxi. p. 602, I have read an interesting account of Prof. Hughes's experiments on the change produced in iron and steel wire by immersion in acidulated water.

May I ask you to draw the Professor's attention to my experiments on this subject, *vide Proceedings* of the Literary and Philosophical Society of Manchester, January 7, March 4, December 30, 1873; January 13, March 10 and 24, 1874; and *Proceedings* of the Royal Society, No. 158, 1875; and a short article in NATURE, I think.

It has long been known to manufacturers of iron wire that iron becomes brittle after immersion in dilute sulphuric or hydrochloric acids. I believe, however, that I was the first to show that this change was due to occluded hydrogen, and by a careful series of experiments to determine approximately the percentage alteration in the breaking strain and elongation at the moment of rupture produced by occluded hydrogen in—

- (a) Ordinary or puddled iron wire;
- (b) Iron wire manufactured with charcoal instead of coal;
- (c) Mild or Bessemer steel;
- (d) Cast steel.

I also found an increased electrical resistance in wire containing occluded hydrogen, though subsequent experiments have led me to believe that the numbers I first published were too large.

My papers also called attention to the diffusion of hydrogen in iron wire beyond the part immersed in acidulated water; the increase in the length of wire charged with hydrogen and some other phenomena.

The whole subject of the occlusion of hydrogen by metals is one of great interest, and the scientific world will be glad if an accomplished experimenter like Prof. Hughes turns his attention to the subject.

WILLIAM H. JOHNSON

The Ferns, Bowdon, near Manchester, April 26

## Stone Arrow Heads

THE interesting investigations of Mr. Redding on the method of making the above objects, as referred to in NATURE, vol. xxi. p. 613, have been somewhat anticipated by Mr. Paul Schumacher, "Methods of making stone weapons," *Bull. U.S. Geol. and Geog. Survey*, vol. iii. p. 547, 1877, which again was a translation from an earlier publication in *Archiv für Anthropologie*, vol. vii. p. 263. Mr. Schumacher's information was derived from the last arrow-maker of a tribe of Klamath Indians, and appears to correspond generally with that obtained by Mr. Redding from the representative of another tribe in the same region. Mr. Schumacher states that obsidian is not the only stone used, but chert, chalcedony, jasper, agate, and similar stones of conchoidal fracture. "The rock is first exposed to fire, and, after a thorough heating, rapidly cooled off, when it flakes readily into shreds of different sizes under well-directed blows at its cleavage." The process is also illustrated in Mr. Schumacher's paper. Superior stone mortars are often found in use amongst these Californian Indians, who deny their capability of making such objects, and account for their possession as "finds" either on the surface or beneath the earth, and describe them as the work of another and previous race.

W. L. DISTANT

Derwent Grove, East Dulwich, May 1

## The Mode of Suckling of the Elephant Calf

IN some of the accounts recently published of the birth of an elephant in a menagerie in America it is stated that up to this time naturalists had always believed that the elephant calf obtained its mother's milk by means of its trunk, and not directly by the mouth.

Whether this be the case or not, Aristotle was certainly an exception, as the following passage from the twenty-seventh chapter of the sixth book of his "Historia Animalium" (Ed. Bekker, Oxford, 1837) clearly proves—"Ο δὲ σκύνωσ, θαυμάζει τῷ στόματι, οὐ τῷ μυκτῆρι, καὶ βαθέσι καὶ βλέπει εἰθὺς γεννηθεῖς."—"And the calf, when it is born, sucks with its mouth and not with its trunk; and it both walks and sees as soon as it is born."

J. C. G.

May 3

## The Tay Bridge Inquiry

IN the *Pall Mall* of April 21 appeared a report of the evidence of Mr. Henry Law, C.E., in the Tay Bridge inquiry. In this report Mr. Law is made to say: "The heavy girders would fall more rapidly than the carriages; a train moving forward at a great speed would not fall so rapidly as a quiescent structure."

I have been induced to ask your insertion of this note in NATURE in the hope that some of your readers who are at home in such matters may confirm or contradict these statements. A person with a mere elementary knowledge of dynamics would disbelieve the latter of them, and would doubt that the former has any *practical* truth.

Q. C.

Queenwood College, near Stockbridge, Hants

## Yeast and Black Beetles

IN what form should yeast be applied for the destruction of black beetles? If Prof. Lankester will show us how to exterminate them he will earn the gratitude of every

LONDON HOUSEHOLDER

27, Marlborough Hill, N.W., May 1

SUEZ CANAL ROCK SALT.—Dr. Ralton wishes to know where information can be obtained on the subject of the rock salt beds which were cut through in constructing the Suez Canal.

SODIC CHLORIDE CRYSTALS.—Dr. Ralton asks, what is the action of urea in modifying the crystal form of sodic chloride crystals, referred to by our reviewer of Dr. Ord's book?

[Sodium chloride usually crystallises in cubes; it is stated, however, by Prof. Maskelyne in a lecture before the Royal

Institution that in presence of uric acid it crystallises in *octahedra*. There are other similar facts: thus alum usually crystallises in *octahedra*; but if sulphate of alumina is present in excess the alum crystallises in *cubes*.]

THE SONGS OF BIRDS.—In Pennant's "British Zoology," vol. ii., Mr. C. C. Starling will find in an appendix a very interesting paper by the Hon. Daines Barrington on the singing of birds. The paper is dated 1773, and published in the *Philosophical Transactions*, vol. lxiii.—JAMES MACFADZEAN.

#### DECAISNE AND BAILLON<sup>1</sup>

IT is perhaps now time to make a protest against a scandal which has in no small degree excited the disgust of scientific men in various parts of Europe, who, like ourselves, have been favoured with copies of the privately-circulated publication of which the name stands at the foot of this note. That scientific men should quarrel, and quarrel sometimes with singular bitterness, is only to affirm in other terms that they are not exempt from the ordinary frailties of human nature. That they should make blunders in their work, however conscientiously performed, is but another illustration of the same truth. But that a scientific man with any respect for his calling should not merely think it worth while to publish the errors of one who has long laboured, and on the whole laboured not ingloriously, under the same roof as himself, and in the same pursuits, and should persist in the unhandsome enterprise of seeking out and raking together faults, even the most microscopic and frivolous, with all the relish and vindictiveness of gratified spite, is a thing so wholly disgusting that a protest should be made against it in the interest of common decency. Decaisne has spent a laborious life in botanical work of great usefulness and excellence, and his scientific reputation has long been established and acknowledged by his contemporaries, who have been quite capable of estimating the value of what he has done. Baillon, a much younger man, is scarcely less regarded for the industrious profusion and frequent originality of his botanical publications. But he will not materially affect the position of Decaisne by his animadversions, and it is pitiful that any portion of his abounding energy should be devoted to the attempt to discredit writings which, after all, will always be consulted by students on their own merits, and having regard to the state of knowledge at the time they were published. The fact is that no scientific man could undergo with credit such a scathing revision as that to which Baillon has subjected his unfortunate fellow-savant, and we do not say without some reason that the last person who would emerge from the process with anything like satisfaction would be Prof. Baillon himself.

#### DR. RUDOLF SCHEFFER

IT is with sincere regret that we have to record the sudden death of Dr. Rudolf H. C. C. Scheffer, the director of the Botanical Gardens, Buitenzorg, Java, which took place at Sindanglaya on March 9. The loss of Dr. Scheffer will be felt by a large circle of botanists throughout the world, for the splendid gardens of which he was superintendent were in communication with every home and colonial botanical institution; but in the Netherlands Indian Colonies, however, it is that his death will be most felt and deplored.

It is now some twelve years since Dr. Scheffer came out from Holland to take the first directorship of the gardens, which had come into high repute by the great number and variety of species collected into it by numerous eminent botanists and by the energy and zeal of its well-known *hortulanus*, J. E. Teysmann, who has by his numerous voyages added so many new species to the

<sup>1</sup> "Errorum Decaisneanorum graviorum vel minus cognitorum centuria quinta, Auctore H. Baillon."

East Indian flora, and on the fiftieth anniversary of whose uninterrupted connection with the gardens Dr. Scheffer took so warm and active a part last January. Soon after his arrival Dr. Scheffer instituted a school for the training of native boys in the science of agriculture; and for their practical instruction he was the means of having an agricultural garden opened at Zjikoemah, close to the school, and some two miles from Buitenzorg. In this school Dr. Scheffer took the very highest interest and pleasure. It was not intended, on its institution, that he should take any active teaching duties, his superintendence was considered to be all that he could well bestow on it; but finding that the teaching staff was insufficient, he squeezed out of his already overburdened time several hours every day to devote to the tuition of these native boys. When on February 9, on his departure on a botanical journey to the south coast of Java, the writer, little thinking he was saying farewell for the last time, took leave of Dr. Scheffer, seemingly in his ordinary health, he received from him, to aid him in his work, a native boy who had lately taken his diploma of proficiency in the agricultural school. This boy was found to be well acquainted with the general flora of the district and with the classification of plants; he could accurately describe their organs and functions and state their economic uses; he had a good idea of the methods of fertilisation and the values of self- and cross-breeding. He was fairly grounded in the rudiments of zoology, anatomy, and physiology. Until he had tested this youth the writer did not believe it possible for the Malay mind to so clearly comprehend and so accurately to arrange scientific facts. In this the great power of Dr. Scheffer as a teacher appears, especially when it is remembered that he lectured almost to virgin minds and in a language so devoid of all precise and accurate terms as Malay. I am told by a friend, a competent botanist, who has listened to his lectures, that Dr. Scheffer's power of lucid explanation was very great. "I wish," he said, "I had had as good a course of lectures on botany in Holland."

In addition to the labour and anxiety attaching to this section of his work, Dr. Scheffer had also to give occasional lectures to the *aspirant contrôleurs*, the young unplaced civil servants, and to superintend their examinations in agriculture. Over and above this he had the general superintendence of the large botanical gardens on his shoulders, with daily arrivals and despatches of plants to and from all quarters of the globe, on which he had to be consulted daily. If one had entered his small study in the fine building containing the herbarium, one would have found him engaged in his own peculiar work, in which he took so much delight, with his microscope and *camera lucida* studying the *Hemeleia vastatrix*, a subject to which he had been lately devoting much time; in another corner would be a series of Palms—part of Dr. Beccari's collection, on whose examination and description he was engaged, the sectional coloured drawings being done by one of his own native pupils. If we did not find him here we should see the microscope and pencil conveniently left so as to resume work at the shortest possible notice; and adjoining to his house, near the entrance to the gardens, we should certainly find him in his neat library surrounded by a diverse collection of botanical works, and with the spare corners decorated with the busts and photographs of distinguished botanists, with an enormous pile of correspondence, to which he was writing heads of reply in Dutch, French, English, German, for his amanuensis. Dr. Scheffer told the writer that he wrote more than 3,000 letters a year with his own hand. He corresponded with every country and every botanical garden in the world; he had to give all sorts of advice to agriculturists throughout the Archipelago, on the cultivation of or the diseases affecting coffee, tea, sugar, tobacco, &c., and the many great improvements effected in the production of these valuable products is